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HARRINGTON & SMITH, PC 4 RESEARCH DRIVE SHELTON, CT 06484-6212			EXAMINER THOMAS, MIA M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,857

Applicant(s)

ATSUMI ET AL.

Examiner

Mia M. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Amendment

2. This Office Action is made responsive to the applicant's remarks received on 29 December 2004. Claims 1-8 remain pending. This amendment removes the multiple dependencies from the claims and removes any possibly ambiguous claim language. The amendment was not made for reasons related to patentability, and the full range or equivalents for all the elements of the amended claims should remain intact. The preliminary amendment has been entered for instant application 10/519,857.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The "output image data" of claim 1, line 5 lacks an antecedent basis, therefore it is unclear as to which output image data Applicant is referring to. It appears that when read in light of the specification, that applicant intended to claim that the "removal means, removes, from the input image data, part or all of the steps of an operational processing sequence performed on the input image data..." therefore:

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For Examination purposes, Examiner will interpret Claim 1 to read as follows:

1. (new) An information terminal, including data operation processing means for performing operation processing to include, operational processing sequences and other operational processing steps for input image data and preparing output image data, comprising:

removal means, for removing, from the ~~output~~ input image data, part or all of the steps of ~~an~~ the operational processing sequence performed ~~for~~ on the input image data; and

data processing means, for performing the other operational processing steps for data obtained by the removal means and for preparing output image data.

***Examiner has suggested adding the specific operational processing to the preamble to provide clarity and to prevent any potential antecedent basis claim interpretation issues.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motta (US 6,650,795 B1) in combination with Okada (US 6,977,683 B1).

Regarding Claim 1:

Motta discloses an information terminal ("Referring to FIGS. 2 and 3, a color image capturing system is illustrated in the form of a digital still camera (DSC) 10." at column 3, line 26), including data operation processing means for performing operation processing for input image

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data and preparing output image data (Refer to Figure 3, numerals 18, 22, 24, 26 and 28, respectively---Specifically, Figure 3, numeral 26-"Digital Signal Processing" can be best understood as the general data operation processing means), ~~characterized by~~ comprising: removal means (Refer to Figure 3, numeral 32);

Okada discloses:

removal means for removing (Refer to Figure 9, numeral 43 or 49-"Compress"), from the ~~output~~ input image data (Refer to Figure 9, numeral S41), part or all of the steps of an operational processing sequence performed for the input image data (Personal Computer 50 at Figure 9 can proceed with any number of operational processing as shown at Figure S50, S51 and S53 to remove the operational processing done earlier for the input image data);

and data processing means (Refer to Figure , numeral 50-"data processing" occurs via the microprocessor of the personal computer -numeral 50 as shown), for performing other operational processing steps for data obtained by the removal means and for preparing output image data (At personal computer -numeral 50 (Figure 9), the "other operational processing steps", for example, "expand"-numeral S51 and "interpolation" - numeral S46) can all be performed at S43-45 which has obtained removal means-S49 "compress" and will thus prepare the output image data-S28 "Image Display" as shown at Figure 9).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to add the "removal means" and the "data processing means" as disclosed by Okada with the information terminal as disclosed by Motta because the "removal means" and the "data processing means" of Okada further illustrate and exemplify the claimed invention. Although Motta may essentially possess the characteristics of "removal means" and "data

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processing means", the illustrations of Okada as set forth in this rejection shown diagrammatically at each claimed element above shows the combination of these elements and the combined prior art elements according the know methods as disclosed at Motta and Okada yields predictable results. All the claimed elements, when adding the "removal means" and the "data processing means" of Okada with the information terminal of Motta have no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the same time of the invention.

Regarding Claim 2:

Motta discloses:

an information terminal ("Referring to FIGS. 2 and 3, a color image capturing system is illustrated in the form of a digital still camera (DSC) 10." at column 3, line 26), characterized by comprising:

a camera module including a lens (Refer to Figure 3, numeral 16-"lens"),

an image sensor (Refer to Figure 3, numeral 18-"CCD/Color Image Sensor")

and a camera DSP (Refer to Figure 3, numeral 26-DSP/"Digital Signal Processing Circuit"),

and characterized in that:

the camera module produces the input image data ("Referring again to FIG. 3, the portions of the camera 10 represented by the elements 22, 24, 26, 28 and 36 process the output signals from the image sensor as pictures are taken in succession to generate sets of pixels representative of a plurality of images of objects or scenes of interest." at column 4, line 59);

Motta does not specifically disclose the camera DSP, including color correction means, gamma correction means, color interpolation means and image quality correction means, and removal

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means which perform the processes of the claim limitations as listed below. In the same field of characterizing an information terminal;

Okada teaches:

the camera DSP (Refer to Figure 1, numeral 5-"Signal Processor") includes color correction means ("...such as white balance adjustment..." at column 3, line 13), gamma correction means ("...and gamma correction..." at column 3, line 13), color interpolation means ("For example, note at Figure 4, see beneath the arrow that states-"Color Separation and Interpolation"---Specifically, see Figure 7-"Filter Alignment Data") and image quality correction means (Refer to Figure 1, numeral 12-"LCD"-Okada discloses that "...since the purpose of the image display is the LCD display unit 12 is often confirmation of the image composition and color rather than close-range image viewing, it does not pose any problems for the quality of the displayed image to be slightly lower." at column 4, line 63);

and the removal means removes an interpolation process by performing an intermittent process for pixels that are interpolated by the color correction means of the camera DSP (Refer to Figure 8, numeral 24-"Image Data and Filter Alignment Data Recording"---Specifically, the "Filter" at numeral S24 and S30, refer to column 6, line 36-58),

minimizes affects due to a color correction process and an image quality correction process that are performed by the camera DSP (Refer to Figure 9, numeral S49-The compression of the color correction process as performed above at step S43, S49 minimizes the affects of the processing that occurs at the previously steps of Figure 9), and again performs an arbitrary color interpolation process (Refer to Figure 9, numeral S53) and an arbitrary image quality correction process ("Through this processing, the R, G and B complete pixel data created in the digital camera 41 is reproduced (S52) and the image may be displayed." at column 7, line 32.

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For clarity, as explained above, since the image display is the LCD display unit-numeral 12, it does not pose any problems for the quality of the displayed image.).

As best understood by the Examiner, the simple substitution of white balance adjustment for color correction means would yield the same results to one of ordinary skill in the art. The substitution of white balance adjustment for color correction means would have also been an obvious substitution because the prior art contains elements that do not differ in scope and the substitution of these elements have the same well known function and are well known in the art.

Additionally, at the time that the invention was made, it would have also been obvious to one of ordinary skill in the art to add together the "information terminal" comprising the elements as listed above (a camera module, a lens, an image sensor and a camera DSP) and as disclosed by Motta with the functional description of the camera DSP, the camera module and the removal means as disclosed by Okada because

Okada exemplifies a diagrammatic explanation of these claimed elements and although Motta may inherently possess the characteristics of "camera DSP", "the camera module" and "removal means", the illustrations of Okada as set forth in this rejection shown diagrammatically at each claimed element the description of these elements.

While Motta and Okada can be combined, the prior art elements according to the known methods of an "information terminal" having a camera module with a camera DSP and removal means would yield predictable results through this combination of Okada and Motta.

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All the claimed elements, when adding the "removal means" and the "data processing means" of Okada with the information terminal of Motta have no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the same time of the invention.

Regarding Claim 3: Okada discloses an information terminal

characterized in that the removal means identifies an arrangement pattern for color filters that are laid on the image sensor ("...employs an image sensor with color filters that correspond to individual pixels of the sensor." at column 2, line 21-Additionally, refer to Figure 10-"Complete Pixel Data"), and separates color elements of pixels generated during the interpolation process from color elements of pixels used to produce those color elements (Refer to Figure 10, "Pixel Data Including Missing Pixels"), and selectively performs an intermittent process for the color elements of the pixels generated during the interpolation process (Intuitively, refer to the processing that occurs "intermittently" between "Pixel Data Including Missing Pixels" and "Re-Interpolation"). ("Through this program, the personal computer 50 converts the R, G and B complete pixel data expanded in step S51 into pixel data, including missing pixels, based on the filter alignment data, and can then perform interpolation for these missing pixels once more in step S53 (see FIG. 10)." at column 7, line 29).

Regarding Claim 4: Okada discloses a data processing method ("In this embodiment, the widely used discrete cosine transformation (DCT) method is used to perform JPEG compression." at column 6, line 10), including a step of obtaining image data (Refer to Figure 7-"Image Data"; "As shown in FIG. 7, R, G and B pixel data is aligned based on the Bayer type array using the image data after A/D conversion." at column 6, line 17), a step of performing an

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interpolation process for the image data thus obtained (Refer to Figure 7, adjacent to the Image Data block, "Interpolation" or at Figure 8, numeral S26), and a step of outputting the image data resulting from the interpolation process ("The image data compressed in this way is recorded in the second memory 10 together with the filter alignment data." at column 6, line 33; For clarity, Examiner is stating that the output of the image data resulting from the interpolation is recorded to memory (numeral 10)...see line column 8, line 3-11; additionally, at Figure 8, numeral S28- "Image Display" is the outputted image data), ~~characterized by~~ [comprising] the steps of: removing the interpolation process from the image data resulting from the interpolation process (As shown at Figure 9; "... the personal computer 50 converts the R, G and B complete pixel data expanded in step S51 into pixel data, including missing pixels, based on the filter alignment data, and can then perform interpolation for these missing pixels once more in step S53 (see FIG. 10). In this case, the user can select a desired interpolation method from among the interpolation methods incorporated in the personal computer 50 as programs." at column 7, line 41); and performing another interpolation process for data obtained after the interpolation process has been removed (Refer to Figure 9, numeral S53 or Figure 10-"Re-Interpolation").

For clarity, Examiner understands the removal of the interpolation process to occur in or at numeral S49-"Compress" and the additional [another] interpolation process is performed at numeral S53-Re-Interpolation. These numerals can be found at Figure 9.

Regarding Claim 5:

Okada discloses an information terminal ("FIG. 1 is a block diagram of a digital camera 1." at column 3, line 7) ~~characterized by~~ comprising:

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a camera module (Figure 1, numeral 3), having an image sensor (“...comprising a CCD...” at column 3, line 9), for digitizing (“...a signal processor 5 that performs image processing, such as white balance adjustment and gamma correction, of the digital signals obtained by means of the components described above...” at column 3, line 12) and using a signal output by the image sensor to prepare first Bayer-type data (“...equipped with color filters that separate the image signals into data of different colors... A CCD whose pixels are each coated with an R, G or B color filter is used. The R, G and B filters in this CCD are aligned such that G occurs in every other pixel in both the vertical and horizontal directions and R and B are aligned so as to form lines (a so-called Bayer type array).” at column 3, line 38), and for employing the first Bayer-type data to prepare first image data (“Where such a CCD is used, when image information is input to the CCD, image data comprising R, G and B pixel data is obtained, as shown in FIG. 2...” at column 3, line 46), using a first algorithm (Figure 1, numeral 5), and transmitting the first image data (Figure 1, numeral 8, 11 and 12; “a CPU 8 that comprises a microcomputer and that controls the operations of the components and performs processing such as image data compression or expansion or pixel data interpolation, a display memory 11 that stores the image data to be displayed on the LCD display, and an LCD display unit 12 that displays the captured image or recorded image.” at column 3, line 18).

Okada does not specifically disclose a host module, having a main storage device for receiving first image data obtained by the camera module and storing the received first image data in the main storage device and extracting second Bayer-type data from the first image, for employing the second Bayer-type data to prepare second image data using a second algorithm, however;

Motta teaches the elements of the host module as described below.

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a host module ("...the camera 10 includes a compact, generally rectangular outer plastic camera body or housing 14 that encloses and supports the operative components of the camera in conventional fashion." at column 3, line 31-Motta); For clarity, Examiner interprets that the housing 14 acts as the support for the element(s) of the camera module as disclosed by Okada above;

having a main storage device (Refer to Figure 3 numeral 38)

for receiving the first image data obtained by the camera module (The arrow adjacent to the buffer memory-numeral 28- denotes the ability to receive the image data that has been obtained at camera numeral 10 and numerals 22, 24 and 26, respectively as shown) and storing the received first image data in the main storage device (Further, the adjacent arrow to the memory buffer explains the that the memory buffer accepts the "first image data" as shown by way of Figure 3 at Motta)

for reading the first image data from the main storage device and extracting second Bayer-type data from the first image data that have been read, and for employing the second Bayer-type data to prepare second image data using a second algorithm ("...process the output signals from the image sensor as pictures are taken in succession to generate sets of pixels representative of a plurality of images of objects or scenes of interest. The control circuit 30 converts these sets of pixels into a plurality of image files representing images of the objects and scenes of interest. The image files are in the EXIF file format and represent a sequence of pictures taken with the camera 10. These image files may be stored in an internal memory 38 and can be conveyed via an output port 40 mounted in the housing 14 of the camera to a cable 42 connected to the printer 12. By way of example, refer to column 5, line 4." at column 4, line 60).

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At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to add a host module with a main storage device that executes the instructions as stated above at Claim 5 and as taught by Motta with the camera module as disclosed by Okada because, the host module is able to process the signals from the image sensor for a plurality of images based on the host module's ability to store multiple forms of digital images via the removable memory as suggested by Motta (numeral 44). Additionally, the image signals to be processed can be interpreted as a plurality of image data which can be further processed and conveyed via an output connected to a printer.

Since the printer has been incorporated with the combination of Okada and Motto "...the control circuit 30 causes a markup file to be generated in response to the user's selection of a first predetermined sequence of command options via manipulation of the pushbutton controls. The markup file represents the designation of image files ("image data") for further processing. The markup file can include information not only about which pictures are being selected, but how many copies are desired. In addition, the markup file can also include information about image enhancements to be performed on the selected images, such as rotation, cropping, brightening, etc. Once the markup file has been generated, the user can, by following the appropriate menus on the display 56 and actuating the appropriate pushbutton controls, send the designated image files to the printer 12 via the cable 42, removable memory 44 or IR transmitter 50. Regardless of the mode of data transfer, the printer 12 receives all of the selected image files designated in the markup file and all of the information about quantity and enhancements." at column 6, line 37-Motto). The combination of Okada and Motta to combine a host module and a camera module makes this overall "information terminal" more efficient by combining prior art elements

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that have no change in their respective functions but together would yield predictable results to one of ordinary skill in the art at the time that the invention was made.

Regarding Claim 6: Okada discloses an information terminal characterized in that at least one of the first image data and the second image data have an RGB form or a YUV form ("In order to construct a color image from this image data, the pixel data is first separated into R, G and B groups." at column 3, line 50). For clarity, Examiner is submitting that the pixel data that is obtained first (within the first expansion of the image data to the camera, 1 at figure 3) is the first image data and the second image data created at S54 at Figure 9 is also of R G B form.

Regarding Claim 7: Okada discloses an information terminal characterized in that the first image data provided is compressed (Refer to Figure 3, step S3; "The image data is then compressed if necessary (S3), and is recorded in the second memory 10 in step S4." at column 4, line 3).

Additionally, at Step 41 of Figure 9, "first image data" that is provided via the camera, 41 at Figure 9 is compressed at S49, Figure 9.

Regarding Claim 8:

Okada discloses the camera module as characterized and rejected above.

Okada does not specifically disclose that the host module includes a data output unit for outputting data to a printer, so that the second image data are [is] output to the printer through the data output unit.

Motta teaches and describes the host module as stated above.

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Motta teaches an information terminal characterized in that the host module ("Refer to Figure 3, numeral 14-camera body/housing that supports the operative components - (including but not limited to a data output port)... " at column 3, line 31-Motta) includes a data output unit for outputting data to a printer (Refer to Figure 3, numeral 40-"Output Port"), so that the second image data are output to the printer through the data output unit (Figure 3, numeral 42-"Printer"; Additionally, refer to column 6, lines 37-54).

Claim Suggestions:

7. Examiner suggests the following changes be made to the claims as listed below: 1-5

At Claim 2, for example: Examiner suggests that applicant change the claim language to read as follows:

Claim 2: An information terminal according to Claim 1 ~~characterized by~~ comprising: ...

At Claim 3, Examiner believes that the preliminary amendment to the claims had a minor type-o.

Examiner suggests that claim 3 should be read/interpreted as follows:

Claim 3: An information terminal according to ~~one of claims 1 to 3~~ claim 2, characterized...

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Regarding Claim 5 and Kagle et al (US 6,601,506 B2), Examiner can easily use another simple substitution for Okada or Motta as noted above to combine a camera module with a host module for receiving image data obtained by the camera module. For example,

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Regarding Claim 5:

Kagle in combination with Okada also exemplifies the claimed elements of this invention.

Kagle is used here to diagrammatically describe the host module.

a host module (Refer to Figure 1, numeral 10-Kagle)

having a main storage device (Refer to Figure 1, numeral 18-Kagle),

for receiving the first image data obtained by the camera module and storing the received first image data in the main storage device

("Referring to FIG. 1, data is transferred between a host 10 and a memory 18 of a removable digital medium 15 via interface 12. The interface may be a PCMCIA interface or any other suitable interface including, but not limited to, SSFDC, IBM Microdrive™, Smartmedia, etc. The removable digital medium may be any removable digital media having a processor and memory. During data transfer, the data may be converted in either of the conversion blocks 14 or 16. In other words, data transferred between the host 10 and the memory 18 may be converted in a conversion block 14, 16 to or from a format that is compatible with or selected by the host 10. The conversion occurs in the removable digital medium 15. The format of the data stored in memory 18 may be any format prior to conversion." at column 4, line 9-Kagle).

- US Patent Barthel et al. 6,731,800 B1
- US Patent Tsuji 6,259,811 B1
- US Patent Mishima 7,099,506 B2

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mia M. Thomas whose telephone number is 571-270-1583. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkrum Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mia M Thomas
Examiner
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Mia M. Thomas


VIKKRAM BALI
PRIMARY EXAMINER

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :15 August 2005;
29 December 2004.